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SCRATCH MARKS AND A TETRADACTYL FOOTPRINT FROM THE CHACARILLA FORMATION (UPPER JURASSIC - LOWER CRETACEOUS): ARE THEY THEROPOD SWIMMING TRACES?

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The Chacarilla Formation (Upper Jurassic - Lower Cretaceous) consists of sedimentary rocks deposited in a meandering river environment. It is extensively exposed in numerous canyons along the 1st and 2nd Regions of northern Chile, in which we have observed abundant theropod dinosaur footprints; narrow- and wide-gauge sauropod footprints; and large ornithopod footprints. In some cases we have found ripple marks inside large-sized footprints and, where these occur, the adjacent substrate surface is also rippled. These features indicate that either they were made below the water or a rise of the water level occurred after the animal passed through. One stratigraphic level also presents a trackway made of one tetradactyl footprint and numerous scratch marks. The latter appear as two or three thin parallel deep impressions, 10 cm long and 8 cm apart. The tetradactyl footprint is 10 cm long and 17 cm wide, and its digital impressions are 8 cm long. Another trackway from the same level has an arrangement of scratch marks starting with five 10 cm long parallel impressions (PI) and followed by a succession of three 6 cm long PI, two 10 cm long PI and two 5 cm long PI, all these separated by *ca*. 25 cm. The scratch marks could be attributed to theropod dinosaurs, considering the high frequency of theropod trackways in this formation; however, the presence of a tetradactyl footprint and a group of five scratch marks suggest another archosaur as the trackmaker. If this is the case, a greater biodiversity for the Chacarilla ecosystem is indicated.